

REMARKS/ARGUMENTS

Claims 1-3, 7, 9, 10, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatenable over MASUMOTO (U.S. 5,418,583) and O'BRIEN ET AL. (WO 03/064919). Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatenable over MASUMOTO in view of applicant's admitted prior art. Claims 11, 13-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatenable over MASUMOTO and WEI ET AL. (US 2004/0145710).

10 **1. Amendments to the specification:**

In the specification, the paragraphs [0015] have been amended to clearly describe the relative position of the invisible-light cut filter and the first lens array, wherein the invisible-light cut filter and the optical axis of the first lens array have an included angle about 45 to 79 degrees. Since the optic axis is inherent in the first lens array and illustrated in Fig.2 of the original version, no new matter has been added. Acceptance of the amendment of the specification is respectfully requested.

2. Rejection of claims 1-3, 7, 9, 10, 17 and 18 under 35 U.S.C. 103(a):

Claims 1-3, 7, 9, 10, 17 and 18 are rejected under 35 U.S.C. 103(a) as being anticipated by MASUMOTO and O'BRIEN ET AL. for reasons of record, as recited on pages 2-3 of the above-indicated Office action.

Response:

Claim 1 has been amended to specifically describe the optical structure of the present application. The limitation of "the invisible-light cut filter and the optic axis of the first lens array having an included angle, and the included angle being about 45 to 79 degrees" added to claims 1 can be supported by the specification and the drawings, and no new matter is added.

According to the amended claim 1, a light source module is provided, the light source module comprising a light source for generating light beams, a first lens array having a optic axis positioned on a side of the light source, and an invisible-light cut

filter positioned on a side of the first lens array away from the light source, the invisible-light cut filter and the optic axis of the first lens array having an included angle, and the included angle being about 45 to 79 degrees. Generally speaking, as the light beams propagate to the invisible-light cut filter, most part of the light beams passes approximately along the optic axis of the first lens array in the present application, and therefore **most of the light beams penetrate through the invisible-light cut filter at an incident angle about 11 to 45 degrees.** Accordingly, invisible light will be reflected by the invisible-light cut filter with a reflection angle about 11 to 45 degrees. Furthermore, the invisible-light cut filter of the present invention is positioned away from the first lens array so that there is enough space for the invisible-light cut filter to have a preferable inclination angle, which can control the reflection angle of invisible light reflected by the invisible-light cut filter. **Accordingly, the total amount of invisible light reflected back to the light source or the space inside the light source housing can be reduced, and furthermore, the temperature inside the light source housing and the temperature of the light source can be effectively decreased.** Consequently, the lifetime of the light source module can be lengthened and the elements of the light source module and other device of projectors can be also protected (para. [0018]). In sum, **because the invisible-light cut filter and the optic axis of the first lens array have an included angle about 45 to 79 degrees, the light source module can reduce an amount of light reflected back to the light source housing, and the lifetime of the light source module can be lengthened.**

MASUMOTO discloses an invisible-light/UV/IR cut filter 105 perpendicular to the first lens array 4 and perpendicular to the optical axis of the first lens array 4 (Figs. 15-17). Therefore, according to the projector taught by MASUMOTO, **the most of light beams should penetrate through the invisible-light cut filter 105 at an incident angle about 0 degree so that invisible light would be reflected in a reflection angle of 0 degree and directly passes into the reflective housing 3 along the dotted line (optic axis) in Fig. 15-17.** Thus, the projector does not able to decrease the energy of invisible light reflected back to the light source 1 or the space inside the reflective housing 3, and cannot lengthen the lifetime of the light source

module.

O'BRIEN discloses a light cover comprising an infrared filter 12. According to Fig. 2 and pages 3-5 in the specification, **O'BRIEN ET AL utilize the infrared filter 12 to reflect a substantial proportion of the infrared radiation, indicated by the chain arrow 24, toward the rear of the housing 18.** The angle of the infrared filter 12, indicated by angle A, is carefully selected to direct the reflected infrared radiation toward a non-critical part of the housing 18. Therefore, infrared radiation reflected by the infrared filter 12 propagates inside the housing 18 that contains the light source 16. Furthermore, O'BRIEN does not specifically teach the invisible-light cut filter and the optic axis of the first lens array having an included angle about 45 to 79 degrees.

According to MPEP 2143, "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." Neither MASUMOTO nor O'BRIEN teaches the invisible-light cut filter and the optic axis of the first lens array having an included angle about 45 to 79 degrees, so the combination of MASUMOTO's disclosure and O'BRIEN's disclosure is different from the present application.

According to MPEP 2141.01(a), the examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." The light source module in the amended claim 1 is set for reducing an amount of light reflected back to the light source housing, but MASUMOTO's disclosure and O'BRIEN's disclosure do not suggest to solve this particular problem.

Therefore, the combination of MASUMOTO's disclosure and O'BRIEN's disclosure does not disclose all the limitations of the structure in the amended claim 1, and the functions of the present application are also different from MASUMOTO's disclosure and O'BRIEN's disclosure. Since MASUMOTO does not teach the invisible-light cut filter and the optic axis of the first lens array having an included angle about 45 to 79 degrees, and never provides a solution to reduce the total amount of light reflected back to the light source housing, the amended claim 1 should be allowable in consideration of 35 U.S.C. 103(a). Reconsideration of claim 1 is respectfully requested.

Since claims 2-3, 7, 9, 10, 17 and 18 are dependent upon the amended claim 1, they should be allowable if the amended claim 1 is allowable. Reconsideration of claims 2-3, 7, 9, 10, 17 and 18 is respectfully requested.

2. Rejection of claims 4 and 8 under 35 U.S.C. 103(a):

Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over MASUMOTO as applied to claim 1 above and further in view of applicant's admitted prior art for reasons of record, as recited on page 3 of the above-indicated Office action.

Response:

The Examiner points that applicant's admitted prior art discloses a PS converter and a high-pressure mercury lamp. However, claim 1 has been amended to contain the limitation of "the invisible-light cut filter and the optic axis of the first lens array having an included angle about 45 to 79 degrees". Because the structure of MASUMOTO's disclosure is different from the light source module of the amended claim 1, the combination of MASUMOTO's disclosure and a PS converter or a high-pressure mercury lamp is still different from the present application. Thus, the amended claim 1 should be allowable in consideration of 35 U.S.C. 103(a). Since claims 4 and 8 are dependent upon the amended claim 1, they should be allowable if the amended claim 1 is allowable. Reconsideration of claims 4 and 8 is respectfully

requested.

3. Rejection of claims 11, 13-16, 19 and 20 under 35 U.S.C. 103(a):

Claims 11, 13-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being
5 unpatentable over MASUMOTO and WEI ET AL. for reasons of record, as
recited on pages 3-4 of the above-indicated Office action.

Response:

Claim 11 has been amended to specifically describe the optical structure of the
10 present application. The limitation of "the invisible-light cut filter and the optic axis of
the first lens array having an included angle, and the included angle being about 45 to
79 degrees" added to claims 11 can be supported by the specification and the drawings,
and no new matter is added.

15 According to the amended claim 11, a light source module is provided, the light
source module of a projector comprising a light source for generating light beams, a
first lens array having a optic axis positioned on a side of the light source, a second
lens array positioned on a side of the first lens array away from the light source, and
an invisible-light cut filter positioned between the first lens array and the second lens
20 array, the invisible-light cut filter and the optic axis of the first lens array having an
included angle, and the included angle being about 45 to 79 degrees.

Referring to MASUMOTO's application, as known by those skilled in the art,
the most of light beams should penetrate through the invisible-light cut filter 105
25 at an incident angle about 0 degree so that invisible light would be reflected in a
reflection angle of 0 degree and passes into the reflective housing 3 along the
optic axis in Fig. 15-17. Thus, the projector does not able to decrease the energy of
invisible light reflected back to the space inside the reflective housing 3, and cannot
lengthen the lifetime of the light source module.

30

According to WEI's disclosure, an invisible-light reflector 38 of an image
projection system 30 is positioned between the light source 32 and the first lens

array 36, and nearby the light source 32 and the opening of the reflective housing 34 [Fig. 2-5]. The image projection system is installed with an invisible-light reflector for confining the exceeding invisible light, including infrared rays and ultraviolet rays, in an accommodating space formed by a reflective housing for protecting the image projection system (para. [0009]). Therefore, invisible light are reflected by the invisible-light reflector 38 into the space inside the reflective housing according to WEI's disclosure.

O'BRIEN discloses a light cover comprising an infrared filter 12. According to Fig. 2 and pages 3-5 in the specification, O'BRIEN ET AL utilize the infrared filter 12 to reflect a substantial proportion of the infrared radiation *toward the rear of the housing 18. The angle of the infrared filter 12 is carefully selected to direct the reflected infrared radiation toward a non-critical part of the housing 18.* Accordingly, O'BRIEN does not specifically teach the invisible-light cut filter and the optic axis of the first lens array having an included angle about 45 to 79 degrees, and infrared radiation is reflected inside the housing 18 by the infrared filter 12.

In contrast, **the invisible-light cut filter of the present application is installed at a position farther away from the light source, and the invisible-light cut filter and the optic axis of the first lens array have an included angle about 45 to 79 degrees, so that most of invisible light will not be reflected into the reflective housing and not reflected to the vicinity of the light source.** Accordingly, the energy of invisible light reflected back to the light source will be effectively decreased and the lifetime of the light source module will be thereby lengthened [0009].

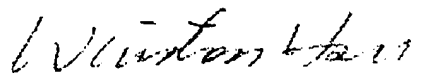
The Examiner points that MASUMOTO does not disclose an invisible-light/UV/IR cut filter, but O'BRIEN teaches arranging an IR filter at an angle of about 11 to 45 degrees for the purpose of preventing reflection of light back to the light source and thus avoiding damage to the light source. However, the combination of MASUMOTO, WEI, and O'BRIEN never discloses an optical structure including an invisible-light filter and a lens array that have an included angle about 45-79 degrees with each other, and does not teach that the invisible-light cut

filter reduces an amount of light reflected back to the light source of to the light source housing. **The structures of cited references reflect light beams into the reflective housing, but the present application reduces the amount of light reflected back to the light source surrounded by the light source housing.** Furthermore, the light cover in O'BRIEN's disclosure is applied to an aircraft operator (pages 1-2). Since O'BRIEN never mentions or suggests that the light cover should be applied to a projector, O'BRIEN's disclosure is neither in the field of applicant's endeavor, nor reasonably pertinent to the particular problem with which the inventor was concerned. Accordingly, the amended claims 1 and 11 should be allowable in comparison with the combination of the cited references.

Since claims 13-16, 19 and 20 are dependent upon the amended claim 11, they should be allowable if the amended claim 11 is allowable. Reconsideration of claims 13-16, 19 and 20 is respectfully requested.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Sincerely yours,



Date: August 3, 2006

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

Voice Mail: 302-729-1562

Facsimile: 806-498-6673

e-mail : winstonhsu@naipo.com

Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 12 hours behind the Taiwan time, i.e. 9 AM in D.C. = 9 PM in Taiwan.)